

Disrupt Yourself Podcast

EPISODE 87: TALIA MILGROM-ELCOTT

Welcome to the Disrupt Yourself Podcast. I'm Whitney Johnson. I think, write, speak and live all things disruption.

Our guest today is Talia Milgrom-Elcott, the founder and executive director of [100Kin10](#), an initiative to train 100,000 excellent new STEM teachers by 2021. Because of a slight technical glitch, we pick up the interview right after I ask Talia about what she wanted to be when she grew up.

WHITNEY So you're a child and, um, you want to be Wonder Woman. You've also wanted to be a Supreme Court judge. So you do that. You're six, you're eight, you're 10 years old, um, but then when you go to college you decide that you're going to study what?

TALIA Social studies-

WHITNEY Okay.

TALIA Which I've spent years explaining to people is not, uh, a big map of the world and pinpointing European capitals and oceans. But is actually a- an interdisciplinary social science, and its premise is that the phenomena we need to understand and the problems you want to solve, they cross every disciplinary boundary. They're not history or economics in isolation. They're not politics or sociology. All of those things influence what happens in our world. Like all of us, that they are complex and connected to all these different sources. And that to really understand them, to fully understand them, and then to have a chance at solving them, we need to know and have a range of tools that we can draw on to help us to both decipher and then to solve.

WHITNEY So how did you figure out though that that was interesting to you? 'Cause I mean like it was just funny when you just said it's not this pin in a map, 'cause that's immediately (laughs) what I visualized. So how did you even know that this was a topic or a major or a field of study that you could pursue?

TALIA So I was driving up to college with my dad and I had taken enough APs that technically I was in school as a sophomore, though I, I didn't actually end up using that. I was technically a sophomore and to keep that standing, I needed to choose a major in my first weeks, which felt entirely too daunting.

But they had sent me a book with all of them, and I had my feet up on the dashboard and my dad is driving, and I'm flipping through the book A-Z, and I get to H and History, and I'm like, "Well, this is kind of interesting, but not quite it." And, uh, G, and Government, it's what they call political science and I'm, that's not quite it, and there's a, um, nothing quite right. And then I get to S and Social Studies, and if my breath, I- I- my breath caught. I was like, "This is it! This is how I think about the world. This is what I want to do." And that was that.

WHITNEY Wow! It's kind of like love at first sight.

TALIA It is kind of like love at first sight, which I would say I didn't really believe in except it happened also with my husband.

WHITNEY That's so interesting. You just saw it and you knew.

TALIA Just saw it and knew. Sometimes I guess it just happens.

WHITNEY So you graduate in social studies. How did you make a decision to from there into the law?

TALIA So here, here are the things I knew. I knew I wasn't done studying. I knew I wanted to make a difference in the world. I knew I had things to learn to be able to do that well. Uh, and I ... so those are the things I knew.

And then here are things I thought that turned out to be wrong. I thought that law was the instrument of social justice.

And that if you, if you studied the law, if you were armed with those skills, you could go out and fix things that were wrong. What I learned in law school, which I ended up loving, but for very different reasons, was that I was right that I needed learn more. I was right there were problems worth solving that I could be a part of fixing, um, but that on the whole, lawyers get to problems after they're are fully blown. Like after they've erupted.

WHITNEY Interesting.

TALIA And I wanted to get to problems before they blew up. I wanted to get at the root of things. And the law was too late for that.

WHITNEY So you study the law, but you didn't ever practice as an actual lawyer?

TALIA I kind of did and didn't. I, I took the bar and then I clerked for a year and I had fellowship for a year, and I summered at a law firm. So I had a sort of little bit of law experience.

WHITNEY Mm-hmm (affirmative).

TALIA And then I jumped ship to go and work on education.

WHITNEY Okay.

TALIA But I want to just give one more shout out to, uh, to people thinking about law school. When I counseled, um, undergraduates while I was in law school, I mostly discouraged people who didn't want to practice law from going to law school because it is at the end of the day, a technical, vocational degree. And so you're spending a lot of time learning stuff

that's actually not that useful if you don't want to practice law. However, it's an incredibly rigorous training in analytical and critical thinking. It's an incredible opportunity to hone your writing. And it is credentialing, which especially for women, and other folks that might be underrepresented in the fields they want to go in, allows you to leapfrog ahead.

WHITNEY I love that shout out. I think it's, you make a really, really compelling case. And so as you thought about, um, thought about this and this idea also of your, you know, you meet so many people who went to law school, but don't practice law and, and I think for them it was more of like, "Oh, oops. I don't like practicing law." As opposed to this deliberate path of you're not even sure if you want to, but you're crafting it as you go. Do you remember, um, when you graduated what you thought you would do?

TALIA Yes, I, I knew that I wanted to give lawyering a chance, and that was part of why I took the fellowship, which was a sort of applied law in the context of organizing, and I did workers' rights organizing that year as a lawyer. And then why I clerked, which was a chance to see the law in its purest form. And really like the, the ideas of the law, and it was pretty clear to me after those two experiences that neither was quite right, and that I needed to get closer to the issue, closer to the core. And it was then that I jumped to work in education, which felt to me as high up the mountain, like in terms of like the, the, the waterfall or the proverbial snowball. Like as close to the essence of where things start as I could get.

WHITNEY It's a nice segue into, um, what you are currently doing, uh, which is, um, being the Executive and Director and Co-Founder of [100Kin10](#). Can you talk to us and tell, tell our audience specifically what was the spark of this idea? The kernel of this idea? How did it all come about?

TALIA It really did come about in response to a moonshot call from President Obama. First, uh, in writing, and then in the State of the Union in January of 2011.

He put out a call for 100,000 excellent science, tech, engineering, and math teachers over a decade. It was 2011, and at the height of partisan conflict in a rancorous Congress. And that call got a standing ovation. Everyone loved this call. Of course we need more great STEM teachers. All of the growing industries have STEM in them. The highest paying jobs are STEM jobs. The emerging sectors are rooted in STEM. Like of course we need this. To say nothing of the biggest problems we're trying to solve as a globe from climate change to health to technology to oceans and stars, right? All of this centers on STEM.

So of course we need more teachers so they can inspire those kids and give them the skills so they can go and do this. And it was almost as if alongside that round of applause and nodding of heads, you could just feel the shrugging of the shoulders-

WHITNEY Mm-hmm.

TALIA "This is never gonna happen. We hear these calls all the time, and we know to stand up and applaud, but they never get fulfilled. No one ever stands there in 10 years with a check mark saying we did this thing we set out to do." And it was honestly one of those moments of feeling that this thing ought to happen, and that this thing can happen. It's a moonshot, but it's in reach. We just don't know how to quite do it yet. And so we need to build the road while walking it. And so I set out to figure out how to do it so that we could actually respond to this urgent call, but also, just maybe have a chance of figuring out a blueprint for responding to other ones too.

WHITNEY You heard that, you felt something. I need to do this. I'm going to do this. What happened next?

TALIA I thought to myself, well, there's no way I can do this alone. I was at a national foundation, Carnegie Corporation of New York at the time and I had a portfolio of investments helping to support great teachers and principals in highest need schools with a focus on STEM. And I knew I couldn't do it alone, and I was confident that neither could the White House. And so the first thing I did was to invite other organizations to step up. And so we invited about 30 organizations together, to come together in New York, prepared to make a commitment to help contribute to this goal.

WHITNEY So you were at Carnegie when this, um, when you issued this call.

TALIA Yeah, I was at Carnegie at the time and heard the call and thought I could be part of the solution. I cannot do it alone, but we can mobilize. Let's invite other organizations. It's gonna take all of us to get to something this big. Hundred thousand. Ten years. Span of a country. It's gonna take all of us contributing in some way toward this goal. Let's invite organizations and see if they'll step up.

WHITNEY Mm-hmm. And did they? (laughs).

TALIA So we invited 28 organizations to come together with this mandate. Come prepared to make a commitment. And we worked backward. We imagined it was 10 years from then, and that we had achieved this goal. We asked, "What has happened?" Knowing that sometimes when we were looking forward at problems, we see all of the impediments. But we imagine success in our heart of hearts, we honestly do know what needed to happen to get there. And then we said, "What would organizations like yours have done? And what might your organization have done? And finally, what would you be passionate about leading knowing that any real change needs to STEM from an organizational capacity and individual passion?" And at the end of the day, organizations, everyone there stood up with 8.5 x 11 pieces of paper and their Sharpies and read out their commitments.

WHITNEY How did it feel in that moment when everybody held up their paper?

TALIA Uh, it was, it was the most, uh, like one of the most goose bumpy moments of my life.

This feeling that people want to be called on to do something bigger. That we're so focused on our own deliverables and our own small pieces of work that sometimes we miss out on the big thing we're actually out there trying to s- to trying to do. The, the big thing that used to inspire us when we were jumping on our beds in our Wonder Woman costumes. The real stuff. The stuff that really gets us out of bed every morning, and that gives, like a fire in our belly. The people were charged up by that. They wanted to be a part of something bigger and something that honestly they knew they couldn't do on their own. That they could contribute to, but wouldn't be theirs alone. And all of a sudden I, I had this sort of dual realization of this is, this is possible. Like we might be able to do this. This can happen and we need to be worthy of this. If all these people are stepping up, willing to commit their time and resources to solving this big challenge, we need to create a backbone worthy of that effort.

And so those, that dual sense, um, has motivated every, like, every evolution of 100Kin10 since.

WHITNEY What are some of the things that people committed to do? I'm trying to envision in my mind as I'm standing up and I'm saying, "I will do X." Like what are some of those things that people said?

TALIA Some organizations committed to training or preparing like, 10% more teachers. Hundreds or even thousands more STEM teachers.

Others committed to, um, creating bonuses and other incentives for hiring them and keeping them. And others yet committed to creating training materials, curricula, um, changing policies to help more and better people both come into and stay in the teaching profession.

WHITNEY So it sounds like in that room there were, um, there were, um, universities in that room? What kinds of stakeholders were in that room in that moment in time?

TALIA So from the very first moments of 100Kin10 from that room and on, we've always had a diverse cross-section of organizations. There were universities, just like you said, and also, uh, school districts, governors, and also corporations, philanthropy, and non-profits.

A mix of organizations of cross-sectors and organizations that routinely are on opposite sides of the negotiating table, or competing for scarce resources.

And that 28 organizations, those 28 organizations, became 280 in five years, and held that same cross-sector ethos from day one to year seven, which is where we are right now.

WHITNEY Wow. Okay, so when was the moment when you realized that, um, in order to have an organization or a backbone that was worthy of this endeavor, that it was gonna be you that was gonna have to do it? (laughs).

TALIA That's a good question. Sometime in that, sometime in that first year it became clear that this was going to need to be more than a loose collection of individual commitments. That if we were going to get to this goal, we not only needed to inspire the best organizations in the country to join up to this effort, and commit their own time and resources to accomplishing it, we were also going to need to help people to learn from each other so that they don't recreate the wheel. They could, uh, collaborate and connect their resources so that they actually bring the resources necessary to bear on the problems they're trying to solve. So they could genuinely learn from one another and solve the most important challenges. All of that was going to need to be possible and that that wouldn't happen on its own. We needed to build it.

So by the end of that first year, when we heard from these organizations that the commitments were powerful, but insufficient. And they wanted to learn and collaborate. We began to build out the tools for them to do.

WHITNEY Interesting. So they said, they came back and said, "We willing to do this. We will do it. We'll commit the resources, but we need glue, and we need someone to help us put all of it together."

TALIA Yes. They said, "'Cause we wanna be more than ourselves. We don't wanna just go about in proximity with one another, doing what we would have done otherwise. We don't know enough on our own. We can't do enough on our own." And they were right. And so again, we needed to become the thing worthy of, worthy of these commitments. Of this moonshot.

WHITNEY Alright, so that was seven years ago. You decided to launch this organization, 100Kin10. Became the Co-Founder, Where are you today? It's seven years in, where are you in this moonshot goal?

TALIA We are on-track to hit the goal on time.

WHITNEY Wow. That's impressive.

TALIA Thank you.

WHITNEY So how many, how many teachers have been trained at this point?

TALIA In the first six years, we always audit at the end of the year, so in the first six years by the Fall of 2017, the network had trained more than 55,000 teachers and had made commitments out to train more than 100,000 in the 10 years. We are tracking about 10% ahead of our goal and have been for the past few years.

WHITNEY So, Talia, when you have a person who is, you know, they, they're in that number, what does that look like? Like, what's the metric that says this person has been trained? How do you measure that?

TALIA We measure that by whether they've been prepared by one of our partner organizations. To get into the network, you need to be nominated, and then apply with your commitment, your track record of excellence, and your, uh, willingness to learn. Excitement, eagerness to learn and to share your data. And so the network of 280 organizations has been chosen from a pool about three times that size, and vetted by a national team of experts. And so these are truly the best in class organizations working on STEM anywhere in the United States. And the 54,000 teachers that have been prepared to date, they have been prepared by one of these organizations. They've been certified to be STEM teachers.

WHITNEY Mm-hmm (affirmative).

TALIA So they've gone to ... in all of these cases, four-year universities, and most of the cases master's degrees in education. So they have undergraduate degrees in either or both of STEM and education, and m- most of them have master's degrees in either or both of STEM and education. A STEM field and education.

WHITNEY And prior to this they may have been a STEM teacher or they may not have been a STEM teacher. So part of this is about adding to the pool of STEM teachers, but also retaining STEM teachers.

TALIA So that 54,000, they are all new to the field.

WHITNEY All new to the field. Fascinating.

TALIA And on top of that, our partners have supported hundreds of thousands of existing teachers to improve their STEM skills and to stay longer.

WHITNEY So for example, my daughter is in high school. Public school here in in central Virginia. She has actually a really high quality, um, uh, calculus teacher. If, um, and physics teacher actually. So if she wanted to, like, how do people get nominated? Do they, do you nominate the teachers? Do the teachers raise their hand? Is it a combination of both? Like, how do people end up getting into this pipeline?

TALIA For most of our teachers, they come in because they have gone to a university or an alternative preparation program like Teach For America that is part of the network. So the vast majority, that's how they come in.

For some teachers, they are nominated by one of our partner organizations, and are part of our teacher forum. A group of lead teachers from around the country who are out there listening. They are our eyes and ears and our fingers on the ground who are listening for all of the both aspirations and concerns of existing teachers.

And so you can be nominated by one of our partner organizations to be in the teacher forum and to join this group, and otherwise you've come through one of the vetted, best in class organizations.

WHITNEY Interesting. What does a good STEM teacher look like?

TALIA Few hallmark characteristics. So if you are a parent, or a student, or a really engaged citizen, you want to see active or hands-on learning. That means the students are engaged in the, in using the, the knowledge, using the algorithms or, um, hypotheses to do their own work. That learning would be project-based and ideally in the best scenarios, it's driven by problems the kids care about. So something they notice in their neighborhood. Or something they read in the news. Or something that somebody said to them, they care about and really want to solve. So it's hands-on, it's problem-based, it's relevant, and it has student agency.

WHITNEY Mm-hmm.

TALIA That is, that is the best learning. It turns out that that is the best learning across every subject.

WHITNEY (laughs). Not just STEM.

TALIA Not just STEM. It's just the most acute in STEM. It is the place where both the, the gap between how it is most often taught, which is rote and with memorization, and how it can be taught, the gap is the biggest. But also the place where it is most authentic to do problem-based or project-based learning because the very nature of STEM is about experimentation and application of knowledge. And it begs to be taught that way. So it's both a place of greatest opportunity and a place where most often it doesn't happen. So those are really the characteristics you want to be looking for.

WHITNEY Alright, so here you are. You're seven years in. You're on track to achieve your goal. How many people can ever say they're going to achieve their goal on-time within budget? Um, and you, um, you have said in the press that, um, you have wondered if in fact, as you've really dug into or drilled down on this problem, if in fact you were solving the right problem. Can you share more of what you discovered, and what you're learning as you're, as you're on this journey?

TALIA Absolutely. Five years into the effort we announced with President Obama, that we were on-track to hit this goal on-time. Like you said, on-time, within budget. Who says that? Who gets to point to the moon that they've been shooting at and say, "We're going to reach it?"

And we also had been celebrating, and so, and up until now when we've talked about all the work that made that thing possible, but what we also began to understand right at that same time was that it was entirely possible that we would put 100,000 more and excellent STEM teachers into schools in a decade, as we had committed to do, and there would still be vacancies in schools around the country. There would still be classrooms, where when

you came in as a kid on your first day, and sat down to learn math or physics or, you know, computer science, there would be no teacher in the front of the room.

WHITNEY Mm-hmm.

TALIA And that would be true on your first day and that would be true on your hundredth day, and that would be true on your last day of school.

That sobering realization, that it was possible to put 100,000 excellent STEM teachers into classrooms around the country and still have a chronic shortage of excellent STEM teachers made us realize that it was, as you said, entirely possible that we could have achieved the task, and not have solved the real problem. And-

WHITNEY Yeah, can I, can I interject for a second?

TALIA Yes.

WHITNEY 'Cause you said something really powerful. So you, I heard you speak at the Business Innovation Factory Summit in 2017, last year, and one of the things you said, and I think this really encapsulates is, "Real lives don't happen in projects, um, they cross every divide and every sector. This goes back to your social studies training it sounds like. And, um, we r- are throwing billions of dollars at projects and those projects are fiddling on the edges of symptoms because symptoms are what we can claim credit for fixing."

TALIA I stand by that.

WHITNEY Yeah.

TALIA I think that in an ironic way, in one of those unintended consequences, "the road to hell is paved with good intentions" kind of way, we in trying to become more accountable in our social impact work, have set our sights on very small change.

WHITNEY Mm-hmm (affirmative).

TALIA The kind of change that we can hold ourselves accountable for, but that doesn't really matter. And I had thought that what we we're doing was setting our sights on the big change, right? No one was, no one was saying to us that 100,000 was too small a goal.

But actually, the real problem was that it was still too hard to get and keep great teachers in this country, and especially in STEM. And we hadn't really touched that.

WHITNEY Do you remember how you felt when you were like, "Wait a second. We had this moonshot goal. It's bold, it's big, it's grand. The President of the United States asked us to do this and we're doing this." And you said, "Wait a second. Maybe this isn't, it's bold, but it's still, like, the right goal, and it's maybe not bold enough. Do you remember when you started to have that aha?

TALIA I do and it's funny because it should have been crushing, right? Like here we were like half-way through on what was honestly the downhill part of a very long journey.

WHITNEY Mm-hmm (affirmative).

TALIA We should have been ... It should have been exhilarating and then the reality of the next part of the work should have been crushing. And instead it was one of the most inspiring, charged up moments of our journey to date.

WHITNEY Really?

TALIA Yes, because there was this feeling that we had climbed up to what we thought was the peak of the mountain, and when we got there we looked around and realized, ah, this wasn't the peak. It was just as far as we could see from the bottom.

And now all of a sudden, I can see the peak and A, that peak wasn't even visible to me before, but B, if I had seen it from the bottom, I never would have gone after it because I didn't have the tools or the muscles or co- capacity to do that, or the team. There's was no way I could get to that thing, but now having climbed up to here, having built up a team. And by team I don't just mean the organization, I mean this network. Having created the tools, having built the muscle, we looked at that next, at that next peak and it was in reach again.

WHITNEY Mm-hmm.

TALIA Or maybe it was in reach for the first time.

WHITNEY So what have you done since then, um, as you ... since you've made that discovery, what kind of work are you doing?

TALIA So we realized that we needed to ... First of all, we, to have any credibility we still needed to hit that 100,000 goal. It was in our name. We had to put that-

WHITNEY Yes, you do. (laughs).

TALIA We needed to hit that goal.

WHITNEY Mm-hmm (affirmative).

TALIA But that the network that we had built intended to hit that goal could actually be the network we needed to understand and then solve the biggest challenges to why it is so hard to get and keep great teachers, especially in STEM. And sometimes you go about doing something and you think you know the why, and it isn't until you've gone out and done the thing that you can see its truer purpose.

And it felt like one of those moments of this network in all of its capacities, deep levels of trust in one another, its enormous levels of engagement, and collaboration, and shared problem-solving, and shared investment, actually were the perfect thing to first, map this whole problem, and then set up to solve it.

WHITNEY It was foundational. All of it was foundational.

TALIA It was. It was. And, and, and instrumental. It wasn't, um, I mean it was critical, like it wasn't ... we couldn't have d- either come to this realization or had any shot at achieving this next step of work if we hadn't built the network first to get to the 100,000.

And so we had a, we did a series of things. The first thing we did is understand that you don't see the wh- none of us sees the whole picture. We all know that there's a chronic

shortage of great teachers, and especially in STEM, but we don't know all the reasons why. So don't assume you see the whole picture, because you don't.

And so we set out to, to understand all of the reasons why it's hard to get and keep great teachers especially in STEM. And we kept asking why until we hit bedrock. And we asked as many people as it took until we stopped hearing something new.

So we asked why until we got to bedrock and we asked a many people as it took to stop hearing something new. And when we had done that we had a complete understanding of all of the reasons it is so hard to get and keep great teachers, especially in STEM. At that point, we could have stopped. Except there were about a hundred reasons.

WHITNEY Oh. (laughs).

TALIA (laughs). Which would make any sane person want to run away, or just bury their head in the sand, or just keep doing what they were doing before, but certainly not want to tackle them.

WHITNEY Mm-hmm (affirmative).

TALIA And so we realized we needed to find the highest levers, the most powerful of those hundred reasons. What was really at the core? And how can we filter out the noise, the stuff that's just a symptom?

And here we turned to the craziest of, of places for inspiration. We turned to ecologists, and to work they had done in the Pacific Northwest in the Olympic Peninsula. What they had found there was that there were these beautiful bays and coves that were teeming with wildlife, and there were mussels, and barnacles, and sea turtles, and, uh, starfish. All kinds of things swimming around. And in happy equilibrium.

And if you drove just a little bit down the, down the coast, you would find nearly identical seeming bays and coves and beaches completely overrun by mussels. With nothing else there. And for the longest time, no one had any idea why. And they tried all different things. These were well-meaning people. Super smart, super well-meaning trying all different things. Maybe it's toxicity of the water, or something in the air? Maybe it's human intervention? And so all different hypothesis and all different ideas, and nothing worked.

It is worth pausing here to draw out the metaphor because that's true for all of us, whether that's trying to increase the numbers of women and, uh, underrepresented folks in our Fortune 500 companies, or it's trying to understand and solve the opioid crisis, or it's trying to ensure that all citizens vote. You know, pick your problem. There are a million reasons or maybe more like a hundred-

WHITNEY Mm-hmm.

TALIA For why it's a problem, and all kinds of people are doing and yet nothing seems to stick. And that was true in the Olympic Peninsula until some ecologists had the idea of mapping the whole ecosystem. So just like us, they understood that they didn't see the whole picture, and they needed to see the whole thing because you can't solve a problem you don't understand.

And so they set out to map all of the parts of this ecosystem and how everything connected. And what they found when they did that is that everything *was* connected. So

there were no silver bullets and their efforts to deal with water toxicity, or the air, or human intervention alone weren't going to matter. It's one of those, like, most basic insights that keeps hitting us in the head. There are no silver bullets, right? It's like those movies where a butterfly flaps its wings in one place and then people fall in love, or there's a tsunami somewhere else. Like, we know everything is connected, but we rarely take action based on that knowledge.

So everything is connected, but what they also found is that everything isn't equally connected.

WHITNEY Mm-hmm.

TALIA That it's not randomly connected either. And it's actually exactly that non-randomness that helps us to simplify. Because what you look for are the places that are more connected to other things than anything else. So when they get better, lots of other things start to get better too.

In the Pacific Northwest, they discovered that there was one, just one species that was the most connected to the most other things. Do you wanna know what it is?

WHITNEY Yes, I do! (laughs).

TALIA It's the starfish.

The staple of touch tanks everywhere that best I've ever known doesn't even seem to move when I pick it up, or when my kids do. It, it turns out to be a natural predator of mussels. And if you could pay attention to the starfish, everything else works itself out.

WHITNEY Wow. Okay, so you, alright so you s- learn about all this study, Pacific Northwest, and then what do you do with that information in terms of now coming back to 100Kin10? What did you do next?

TALIA So, as a, as a, as background, whether or not useful. I- when I first talked to Eric, who was one of the ecologist's who is studying these ecosystems and finding what they were calling the keystone species. These higher, these higher a- leverage species in the system. We were talking about network mapping and not at all about this work, but he shared it with me, and I sort of filed it in the back of my head.

Fast forward now, I don't know, six, or nine, or 12 months, and we are deep in this work and have mapped out this whole system, but don't understand how all the parts connect. And I think, oh, well, I know a guy who does this. Only he does it with marine life, and actually, like, the flowers in Yosemite Valley. Maybe he can work with us.

And we reach out to him, and he comes on board, and brings along these other incredible people to help us to figure out how to apply these, these concepts from ecology to the first social sector problem. To a big social sector problem. And in fact, we end up doing the first big social sector application of this idea, of the keystone species, and engage a- nearly a thousand people in mapping the connections between all of these hundred reasons why it's so hard to get and keep great teachers, especially in STEM, and discover that 35,000 data points later, there are keystone species here also.

WHITNEY What are they?

TALIA The most interesting ones that I think are the lowest hanging fruit of all of them, and there are a few, are our starfish has more than five arms, have to do with school culture.

WHITNEY Really?

TALIA Yes. It turns out that the way we design schools, how we think about the teachers, the adults in the schools, really matters to whether people want to teach and then stay in teaching. This is, like, Management 101.

WHITNEY Mm-hmm.

TALIA And yet is a profound or even radical insight for schools. So whether teachers have time for professional development during the school day, whether they have time to collaborate during the school day, and whether principals create supportive environments for the adults in the building. Those three things have more impact on the system than almost anything else.

WHITNEY Wow. It's, it's one of those, like you said, duh, right?

TALIA (laughs).

WHITNEY It's duh. But we don't think about it.

TALIA It ought to be. We don't think about it.

WHITNEY Yeah.

TALIA And in fact for the longest time, we've thought about schools as places where either the kids or the adults flourish, and not as places where for the kids to flourish, the adults need to flourish too.

WHITNEY Right.

TALIA And the thing about it that's so amazing is that anyone can do this. There are all kinds of impediments. I don't want to make it sound easy, but it is simple. On the nature of the starfish, of these keystone species is that they influence many things, but they themselves are influenced by relatively few.

So as compared to all of those big, nearly intractable problems that we face all the time in education or really in any problem we're trying to solve, there are always some that have more impact, outsized impact compared to how hard they are to change, and these are on that list, and way at the top, which means that they're easier to effect than most anything else and they have more impact than almost anything else.

WHITNEY Okay, so let's kn- let's you just said culture. Let's do one more.

TALIA This sounds like also like it should be so basic, but most basically nobody does it, um, that states need to track how many vacancies there are in wh- spec- in specific subjects and then how many people are being prepared for those subject.

WHITNEY Huh. Why is that-

TALIA Literally, people don't know. (laughs).

WHITNEY Oh, just i- it's just a matter of not knowing, like you don't know what the supply and demand is?

TALIA Exactly.

WHITNEY It's an information issue.

TALIA It's a, it's like one of those core principles of why markets fail. It's a basic information problem, and so nobody knows how many teachers they're going to need in which subjects, and in particular the universities and other preparation programs that are training these teachers don't know. And so we routinely graduate thousands, tens of thousands more people in subjects where they will not be hired because there are no vacancies and under prepare in the key subjects where we actually need people.

WHITNEY So coming through an education program saying, "Hold on. Before you decide to go, you know, study music education, be aware that there aren't any job openings, but by the way if you're willing to study math education, you will have your pick of jobs." Like there's just no sort of database around that?

TALIA Exactly, and you can imagine going through that from a, um, empowering the consumer - here the teacher, or the teacher candidate, the undergrad-

WHITNEY Right. Right.

TALIA You could also see doing it to, um, incentivize the university. So, we will, you know, states and the federal government pay for, um, preparation support and subsidized preparation programs. You can imagine saying, "We will support and subsidize only those where you have vacancies."

Or we well doubly subsidize those where you have vacancies and -

WHITNEY 'Cause we wanna place our graduates. Yeah.

TALIA Exactly. Because we know our kids need that right now, and you can see doing that in really sophisticated forecasting ways that don't, um, that takes into account peoples' autonomy, their choices. It helps them make good decision, helps the users make good decisions, and ensures that the schools have the types and quality of teachers they need.

WHITNEY Wow. Okay, so, so just a few more questions as we start to wrap up. So now that you have all this information, how is this changing the trajectory of 100Kin10 in this specific problem or symptom that you've been trying to eradicate? That's my first question, and my second question is now that you've discovered this analytical tool, what are you going to do with it?

TALIA So on the first question, we up until now, we have supported all of our partners on whatever they're working on. So do, are you trying to improve third grade math? Great, we'll support you there, and give you tools or connect you to other people who are trying to do that. Are you trying to figure out how to teach, uh, chemistry to students who don't speak English as a first language? Fantastic. Are you working in rural areas? Are you focused on girls? Focus on tech or engineering? Wherever you're working, our job is to be

the platform that connects you to others so that you can do your work better. We are like the SAP of non-profits, right? Accelerating all of your work.

WHITNEY Right.

TALIA For the first time, now that we have the map, we're saying a good part of our resources will be to support you wherever you are because that work is important. To the field, to students right now, to teachers right now, and to hitting that 100,000 goal. But for the first time we're focusing a part of our resources, a significant part of our resources, on driving progress specifically on these culture catalysts.

WHITNEY Right. Right.

TALIA There are starfish out there, and what we believe, and the data is showing us, is the more we focus on them, the faster we roll that snowball down the mountain. And the faster we can roll that snowball, the faster we get wins, the more other things start to get better. That's the whole point of the starfish. You take care of those things and other things start to get better. You create schools where teachers can collaborate and engage in professional learning during their school day, in which they're being supported? More people want to join and fewer people leave.

WHITNEY Right.

TALIA All of the pr- problems start to get better when those two things happen.

And so we've been, uh, kind of mobilizing the network to do a massive scan of the field. What is working? What's not? What's been tried? What do we know around these culture keystone species? And then to find the places where we need to double down, and th- the opportunity gaps. The places where there are opportunities to step in because there are gaps and we will be mobilizing the field in both of those places.

WHITNEY That's so exciting. So exciting. Okay, so you'll not only, you're going to hit your goal, and the symptom has led you to the real problem, and so now it's you've got the potential to have your work be transformative, um, which is super exciting.

Um, so the big question for me is I hear about this really interesting analytical tool. What other problems are you going to solve with this now? Are people coming to you? Um, are you going to build a for-profit arm? Like, what, what's all this going to look like, or do you know?

TALIA We have just launched a, this thing we're calling the Starfish Institute, and we have launched it because as we've been telling these stories about the work and our own trajectory, and the keystone species. People want, they want it. People want to know what the core challenges are in whatever they're trying to solve. No one wants to be working on symptoms or fiddling on the edges. This one beautiful and precious life it's, it's all we've got, right? And whoever you are, whether you're the President, or a citizen, a parent, or a teacher, a business owner. You got so many plays you ever get to make, and we all want those plays to, to matter.

And so we've launched this idea of the Starfish Institute to advise people on everything from the mapping to how you build the kind of network that you can mobilize to go after the core stuff.

And we sort of, if we, if I were to say there's like a recipe to it, though of course there isn't ever a real recipe, but as close as we've got to one. You got to see the whole picture. You got to keep asking until you get to the bedrock issues. You need to filter out the symptoms from the core. So find your keystone species. And then you need to build your coalition, likely and unlikely actors who can work together. Because the myth of the solitary genius? That's been shattered.

There are no more a-ha moments. We all need networks to bear on these most complex of challenges. And then with the moonshot clear, right, this core challenges, your network in place. That's when you're ready to after it with everything you've got.

WHITNEY Alright, so, my question to you is, um, here you are, you're seven years in. You've made all these huge discoveries. What's your next moonshot goal?

TALIA We want schools to be great places to work.

We don't think that anything in education can get better until that's true. If schools aren't great places to, to learn, to work, to try things, to fail, to learn again and get better for teachers and for students? We're never going to prepare all of our students for the crazy and amazing challenges of the 21st Century. So schools have to be great places to work. And that is our next moonshot.

WHITNEY Ah. It's amazing. Are there any problems already that people are trying to solve with the Starfish Institute?

TALIA We are in soft launch right now. And have been talking to folks working on health, reproductive rights, aging, technology, uh, the representation of women in Fortune 500 companies-

WHITNEY Mm-hmm (affirmative).

TALIA So the full range of issues nationally and abroad and are looking right now for just our first few partners with who we'll design all these tools, and for whom. So sort of the client zeros, we've been calling them. And are really lucky, fortunate that we are choosing from among some really great potential allies, and so if you're interested in partnering with us, come let me know.

WHITNEY Yeah, so how can people reach you. It's a really good question.

TALIA They can email me at my initials. t-m-e@100Kin10 for that hundred thousand in 10 goal.org.

WHITNEY Okay, my very, very last question for you is as you think about you have three children and they're under the age of 10, is that right?

TALIA Six, eight, and 10.

WHITNEY What about your work is most interesting to your children?

TALIA That's such an interesting question. What is most interesting to them?

Hmm. I don't know if I have a great answer to that, Whitney.

WHITNEY What, what about your work are your children observing and watching and thinking, wow, that's really exciting that my mom does that. And so maybe you don't have an answer, but I think it's something to think about.

TALIA I'll try an answer and we can see how it lands. They, they know that I try to help teachers and they are lucky to have amazing teachers, and love their teachers, and they know that at the, at the essence my work is trying to help there be more great teachers like the ones that they have to make sure that all teachers are ... being supported or getting the support that they need.

WHITNEY Yeah.

TALIA That, that makes a lot of sense to them. And they know that that work is focused on technology, and math, and science-

WHITNEY Mm-hmm (affirmative).

TALIA And that I care about like how we build and make things and make sure

WHITNEY So they know-

TALIA Everyone gets to do it.

WHITNEY So they know that their mom cares about their teachers.

TALIA They know their mom cares about their teachers. They know that their mom cares about everyone. I have, I have three girls-

WHITNEY Mm-hmm (affirmative).

TALIA That all kids, whatever their backgrounds, whatever they look like, should get to know things and do things to help make this world better.

WHITNEY Mm-hmm (affirmative). Lovely. Well, Talia, thank you so much for your time. I think our listeners are going to find, um, what you're doing and the journey you're on, and your mission, um, to, uh, create a possibility for great teachers and great education just really, really inspiring. So thank you so much.

TALIA Thank you so much. I'd loved being on the call with you.

I loved hearing Talia talk about her educational experiences, knowing she wanted to do social studies. And knowing she didn't want to do law, but once there, deciding to glean all that she could.

And I can't stop thinking about starfish.

Everything is connected. Understand the keystone species. Dig down to the bedrock - What is it that connects everything? Once you've done the work to think about the problem, even a seemingly intractable problem, you might find that it's fairly solvable. With teachers, for example, the starfish problem is that culture is important, they want to learn, to collaborate. To be part of an A-Team. Just like the A-Teams they create in their classrooms every day for the kids they teach.

The wonderful part of all this. Is you take care of the starfish problem, the keystone species, everything starts to get better.

Practical tip:

If you know someone who wants to be a teacher, or know a teacher who wants to improve the culture where they work, share this episode with them or take a screenshot of your phone to share on Instagram and tag them.

Thank you again to Talia Milgrom-Elcott for being our guest, thank you to sound engineer Whitney Jobe, manager / editor Macy Robison, content contributors Emilie Davis and Libby Newman, and art director Brandon Jameson.

I'm Whitney Johnson.

And this is Disrupt Yourself.